

Zhaodong Liu

Email: z14789@nyu.edu | Tel: (+86) 131-5629-6623

EDUCATION

New York University Shanghai

Bachelor of Science; Double Major: Computer Science, Mathematics

Shanghai, China

Sep 2022-May 2026

Cumulative GPA: **3.811/4.0** | CS Major GPA: **3.941/4.0** | Math Major GPA: **3.926/4.0**

- **Study-away Experience:** NYU NY in Fall 2024 and Spring 2025
- **Awards:** Dean's List for Academic Year 2022-2023, 2023-2024, 2024-2025

Relevant Coursework: Multivariable Calculus(A), Honors Linear Algebra(A), Probability & Statistics(A), Honors Numerical Analysis(A-), Discrete Mathematics(A), Analysis (A), Introduction to Computer Science & Data Science(A), Data Structures(A), Basic Algorithms(A-), Introduction to Databases(A), Natural Language Processing(A), Java and Web Design(A)

RESEARCH EXPERIENCES

Research Assistant, New York University Shanghai

May 2025-present

Generative Retrieval for Recommendation System

Advisor: Prof. **Hongyi Wen** (Department of Computer Science, Data Science and Engineering, New York University Shanghai)

- Developed models to predict user behavioral patterns on Amazon dataset
- Designed and evaluated model architectures, including RQ-VAE and VQ-VAE, to capture discrete behavior patterns, achieving 25.6% (from 0.0359 to 0.0451) performance improvement
- Applied different tokenization methods, including BPE partitioning to improve sequence representation
- Adapted the model architecture to support multi-modal representation learning

Research Assistant, New York University

Sep 2024-Dec 2024

Finetuning on Pretrained LM to Efficiently Perform Retrosynthesis of Chemical Reactions

Advisor: Prof. **He He** (Center of Data Science, New York University)

- Developed models to make prediction on retrosynthesis of chemical reaction with SMILES notation
- Applied an LLM on dataset reconstruction and augmentation, improving Top-1 Accuracy by 15.4% (from 0.588 to 0.742 while reducing reliance on costly lab data)
- Applied fine-tuning strategies (frozen layers, MLP adapters, LoRA) to optimize training efficiency

Research Assistant, New York University Shanghai

May 2024-Aug 2024

Driving Route Optimization Considering Traffic Light Timings

Advisor: Prof. **Zhibin Chen** (Department of Computer Science, Data Science and Engineering, New York University Shanghai)

- Developed an optimization system for traffic-aware route planning under real-world constraints
- Applied several algorithms, including Dijkstra algorithm to compute the shortest path
- Conducted simulations on real traffic signal records, showing preliminary improvements of speedup

LEADERSHIP & ACTIVITIES

PEER-Pal Club, New York University Shanghai| Treasurer

May 2023-Aug 2024

- Organized exhibitions and club fairs, managed financial operations and budgeting

- Facilitated letter exchanges and Q&A sessions with high school students from Hunan Province

Chamber Orchestra, New York University Shanghai| Trombone Section Leader

Sep 2022-present

- Led the trombone section and coordinated rehearsals, managed instrument storage logistics

DISTINCTIONS

Mathematical Contest in Modeling, Certificate of Achievement

May 2023

- Conducted data preprocessing to remove anomalies and ensure dataset quality
- Built predictive models using methods including Bayesian regression for market analysis
- Collected and synthesized regional market data to support modeling results

SKILLS AND OTHERS

- Programming: Python, Java, C, SQL, Stata
- Tools: Git, PyTorch, Pandas, NumPy, LaTeX
- Language: Chinese (Native), English (Fluent)